Patent
Attorney Docket No. 1016660-000177

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of

Cheung Hoi Yu et al.

Application No.: 10/686,252

Filed: October 16, 2003

For: APPARATUS AND METHODS FOR DETECTING NUCLEIC ACID IN BIOLOGICAL SAMPLES

Group Art Unit: 1637

Examiner: David C Thomas

Confirmation No.: 7612

RESPONSE TO A REQUEST FOR INFORMATION UNDER 37 C.F.R. § 1.105

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

The Examiner has requested a more comprehensive description of the conditions for performing the methods of the invention. In complete response to the Request for Information under 37 C.F.R. § 1.105 mailed July 5, 2007 applicants provide the following:

Specifically, the Examiner has requested the conditions used for applying electrical potential to aluminum electrodes, such as that used in Figure 6. The Examiner has asserted that though the specification states that +10 V is applied to the aluminum electrodes for 10 minutes at page 9, lines 22-25, there is no mention of measurements of any current. The Examiner has inquired whether any attempt to measure current was made, and how much, if any, current was detected.

Applicants explain that in experiments leading to the claimed invention, a potential difference (voltage) was applied to the dielectric layer, which results in a charge separation in the dielectric layer. This was accomplished using a multi-purpose power supply capable of producing a voltage and also measuring current at the same time. Applicants point out that such power supplies are conventional in the art and anticipate that the Examiner will be familiar with such power supplies.

During the experiments, despite applying voltage to the layer, no current flow was detected by the power supply, indicating that no flow of electric current was generated. Applicants further point out that the lack of electrolysis when practicing the methods described in the specification, as described at page 8, lines 13-17, at least implicitly demonstrates that there is no flow of electric current when the devices are used as described.

The Examiner has further inquired what difference, if any, is present between the device of Yu et al. (U.S. Patent Application Publication 2004/0033496) and the presently claimed invention.

Applicants explain that with regard to Yu et al., the layer of aluminum oxide disclosed therein does not prevent the flow of current. (The flow of current when using the Yu et al. device is disclosed in the example of Yu et al. in paragraph [0043], which discloses the application of10 second pulses of 13 microamps [current].) This is because the aluminum oxide layer in the device disclosed in Yu et al. is porous. Thus, it can be envisaged that the porous nature of the aluminum oxide layer permits the flow of current and the occurrence of electrolysis. Due to the porous nature of the layer, the aluminum oxide layer in Yu et al. is not really a dielectric layer.

Thus, as applicants have pointed out previously, while the Examiner is correct to appreciate that aluminum oxide can be a dielectric material, the mere use of aluminum oxide in an attachment layer in a prior art document does not inherently teach or suggest a dielectric layer in which an applied voltage can produce a charge separation without a flow of current. The prior art does not teach or suggest a device having a structure so as to permit the practice of the presently claimed methods, and the prior art fails to teach or suggest the presently claimed method.

CONCLUSION

In view of the foregoing, further and favorable action in the form of a Notice of Allowance is believed to be next in order. Such action is earnestly solicited.

In the event that there are any questions relating to this application, it would be appreciated if the Examiner would telephone the undersigned concerning such questions so that prosecution of this application may be expedited.

The Director is hereby authorized to charge any appropriate fees that may be required by this paper, and to credit any overpayment, to Deposit Account No. 02-4800.

Respectfully submitted,

BUCHANAN INGERSOLL & ROONEY PC

Date: August 28, 2007

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